

REMARKS

After entry of this amendment, claims 1-9 and 19-25 are pending in the present application. Claims 1-9 are hereby amended. Claims 19-25 are hereby added. Claims 10 and 11 were previously canceled in a Preliminary Amendment. Claims 12-18 were canceled in Applicant's last Response. No new matter is added by this RCE Amendment. Support for new claims 19-25 may be found in at least previously canceled claims 12-18. Support for the amendments regarding the "base oil of lubricating viscosity" and types of fluids may be found in at least page 9, lines 14-16 and page 10, lines 25-30 of the present specification. Support for amendments regarding the language "consisting essentially of" may be found in at least the embodiments on pages 18-24, Examples on pages 26-35 and Formulations in Tables 1 and 2 on pages 36-37 of the present specification. Consideration of the pending claims is respectfully requested.

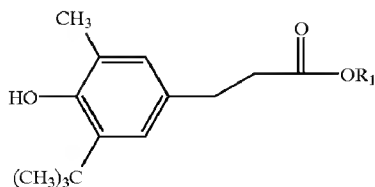
Claims 1, 2 and 6-9 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Publication No. 2002/0065201 to *Ribeaud* et al. (hereinafter "*Ribeaud*"). To properly establish anticipation under 35 U.S.C. § 102, the reference must teach each and every element of that claim. See MPEP §2131. In addition, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." See *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970). For these reasons, the rejection of claims 1, 2 and 6-9 is respectfully traversed and reconsideration is requested.

Independent claim 1 is allowable over *Ribeaud* in that the claim recites a combination of elements including, for example, a "composition consisting essentially of" an "additive mixture consisting essentially of a) At least one compound" having the recited formula "(I)" and "b) At

least one compound” having the recited formula “(II).” Independent claim 2 is allowable over *Ribeaud* in that the claim recites a combination of elements including, for example, a “composition consisting essentially of” an “additive mixture consisting essentially of a) At least one compound” having the recited formula “(I)” and “b) At least one compound” having the recited formula “(II).” Independent claim 9 is allowable over *Ribeaud* in that the claim recites a combination of elements including, for example an “additive mixture consisting essentially of a) At least one compound” having the recited formula “(I)” and “b) At least one compound” having the recited formula “(II).” *Ribeaud* does not disclose, teach or even suggest these features of the claimed invention.

The Examiner alleges that *Ribeaud* discloses diphenyl antioxidants and that the diphenyl antioxidants of *Ribeaud* can be present in the composition as a mixture of two or more compounds defined by the formulae disclosed in *Ribeaud*, wherein the alkyl groups on the phenyl ring differ by their chain length. The Examiner is of the position that the disclosure in *Ribeaud* of at least one aromatic amine discloses a mixture.

However, Applicant respectfully submits that the lubricant composition of *Ribeaud* must include at least one phenol having the formula

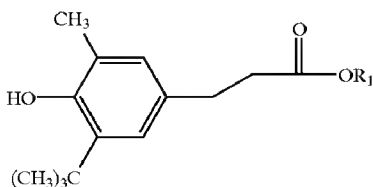


. Applicant points the Examiner to at least paragraphs [0010], [0013], [0104], [0112], [0118], [0124], [0129], Examples 1 and 2, and claims 1 and 6 of *Ribeaud* in which the phenol composition is indicated as being a necessary component of the

composition of *Ribeaud*. Applicant respectfully submits *Ribeaud* discloses the composition and the component are necessary to improve antioxidant properties.

Accordingly, Applicant respectfully asserts that *Ribeaud* does not disclose, teach or even suggest a composition or an additive mixture "consisting essentially of" the compounds as recited in the presently independent claims. As stated in the M.P.E.P., the transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976) (emphasis in original). (Prior art hydraulic fluid required a dispersant which appellants argued was excluded from claims limited to a functional fluid "consisting essentially of" certain components. In finding the claims did not exclude the prior art dispersant, the court noted that appellants' specification indicated the claimed composition can contain any well-known additive such as a dispersant, and there was no evidence that the presence of a dispersant would materially affect the basic and novel characteristic of the claimed invention. The prior art composition had the same basic and novel characteristic (increased oxidation resistance) as well as additional enhanced detergent and dispersant characteristics.). See M.P.E.P. § 2111.03.

Applicant respectfully asserts that the inclusion of the phenol having the formula



as disclosed in *Ribeaud* would materially affect the basic and novel characteristic(s)" of the presently claimed invention. Specifically, the inclusion of a hindered phenol, as disclosed in *Ribeaud* would decrease the advantageously, surprisingly and

unexpectedly high oxidative induction times and RPVOT values that are realized by the compositions and additive mixtures “consisting essentially of” the compounds as recited in the independent claims of the present invention.

To evidence the degradative effects of including the hindered phenol of *Ribeaud* in the presently claimed compositions, Applicant respectfully submit “Aminic & Phenolic Antioxidants – Synergistic or Antagonistic,” STLE Session 2C – Lubrication Fundamentals II, D. Chasan, et al., Ciba Corporation, May 19, 2008, as found in the accompanying Information Disclosure Statement. The documentation evidences the surprising observation that amines and alkylated PANAs have better antioxidant effects in a base lubricating oil when a hindered phenolic compound, such as the one in *Ribeaud*, is not present. Applicant respectfully submits this observation is contrary to what one of ordinary skill in the art would reasonably expect.

Applicant respectfully submits that as clearly shown in Slides 15 and 16 of the documentation, a formulation in which hindered phenolic antioxidants (AO), consistent with the teachings of *Ribeaud*, and an alkylated diphenylamine (ADPA) is included with a base oil. Slide 17 shows the results of an oxidative corrosion test (RPVOT) and an oxidative induction time test (HPDSC) using this formulation. The RPVOT test measures how long a certain pressure is maintained and is an indication of when oxidative corrosion begins to occur. That is, oxidative corrosion occurs when the pressure changes. As shown on slide 17, the optimum RPVOT value for this ADPA-Phenol (AO) formulation occurs at between 450 and 500 minutes. The HPDSC test shows that the optimum oxidative induction time for this formulation is less than 50 minutes. Also, slide 20 shows a formulation in which hindered phenolic antioxidants (AO), consistent with the teachings of *Ribeaud*, and a APAN composition is included with a base oil. As shown, the maximum RPVOT value for the Phenol (AO)-APAN formulation occurs at between 1000

minutes and 1400 minutes. The HPDSC test shows that the optimum oxidative induction time for this formulation is between 80 and 90 minutes. Similarly, slide 19 shows a formulation in which hindered phenolic antioxidants (AO), consistent with the teachings of *Ribeaud*, and a PANA composition are included with a base oil. As shown, the maximum RPVOT value for the Phenol (AO)-PANA formulation occurs at between 2500 minutes and 2800 minutes. The HPDSC test shows that the optimum oxidative induction time for this formulation is between 75 and 80 minutes.

Contrary to what one of ordinary skill in the art would expect, slide 18 shows a formulation in which no hindered phenolic antioxidants (AO) are present and only an alkylated diphenylamine (ADPA) and PANA are included with a base oil. As is surprisingly and unexpectedly shown, the optimum RPVOT value for the ADPA-PANA formulation occurs at more than 3000 minutes and the HPDSC test shows that the optimum oxidative induction time for this formulation is higher than 80 minutes.

Slides 22 and 25 indicate what one of ordinary skill in the art would reasonably expect when formulations of hindered phenolic antioxidants and PANAs, or formulations of all of phenolic antioxidants, PANAs and ADPAs are employed in a base oil. As shown on slide 22, RPVOT values are expected to range from 2041 to 2217 minutes, however, actual observed RPVOT values are well below 1100 minutes when hindered phenolic antioxidants and PANA formulations are used. As shown on slide 25, RPVOT values are expected to range from 830 to 1838 minutes, however, actual observed RPVOT values are between 410 and 1285 minutes when phenolic antioxidants, PANAs and ADPAs formulations are used. These are surprising and unexpected results because, as slide 22 indicates, one of ordinary skill in the art would

instead expect synergistic effects by the inclusion of hindered phenols based on “dozens of” relevant patents and articles that evidence the state of the art.

Accordingly, because it is clear that a hindered phenol as disclosed in *Ribeaud* would materially affect the basic and novel characteristic(s) of the compositions and additive mixtures “consisting essentially of” the compounds as presently claimed, Applicant respectfully submits that *Ribeaud* does not teach or disclose each and every element of independent claims 1, 2 and 9, as required by 35 U.S.C. § 102, and the rejection based on 35 U.S.C. § 102(b) is improper. Therefore, Applicant respectfully submits that claim 1, and its dependent claims 6-8, claim 2 and claim 9 are allowable over *Ribeaud* and requests the Examiner withdraw the rejection.

Claims 3-5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ribeaud*. The rejection is respectfully traversed and reconsideration is requested.

Claims 3-5 are allowable over *Ribeaud* in that each claim is dependent on claim 2 and therefore recites a combination of elements, including, for example a “composition consisting essentially of” an “additive mixture consisting essentially of a) At least one compound” having the recited formula “(I)” and “b) At least one compound” having the recited formula “(II).” As discussed above, *Ribeaud* does not disclose, teach or even suggest at least these features of the claimed invention. Because claims 3-5 depend from claim 2, claims 3-5 are allowable for at least these reasons and for the additional elements they recite.

Further, Applicant respectfully asserts that the presently claimed compositions are patentable over *Ribeaud* in that they yield superior and unexpected results. For example, as clearly shown in Table 1 on page 36 and Table 2 on page 37, the results from the application tests clearly show that the copper corrosion of the novel and non-obvious compositions of formulations 2, 3, 4 and 5 (Table 1) and novel and non-obvious compositions of formulations 2

and 3 (Table 2) is drastically and surprisingly reduced compared to the prior art compositions represented by formulation 1 in Tables 1 and 2. Therefore, Applicant respectfully asserts that the presently claimed compositions are not disclosed by *Ribeaud*.

Accordingly, *Ribeaud* does not disclose, teach or even suggest each and every element of claims 3-5 and therefore, the rejection based on 35 U.S.C. § 103(a) is improper. Therefore, Applicant respectfully submits that claims 3-5 are allowable over *Ribeaud* and requests the Examiner withdraw the rejection. Further, Applicant respectfully submits that *Ribeaud* does not disclose, teach or even suggest the elements as recited in pending claims 1, 2 and 6-9 and that a forthcoming 35 U.S.C. § 103(a) on these claims would also be improper.

Now canceled claims 13-18 were previously rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over *Ribeaud*. These claims are re-introduced herein as claims 19-25. Accordingly, the rejection is respectfully traversed and reconsideration is requested.

In the Non-Final Office Action dated January 4, 2010, the Examiner takes the position that now canceled claims 13-18 are product-by-process claims and that the product is either identical or slightly different than the product of *Ribeaud*. Applicant respectfully submits that the product obtained by the process is not identical and is very different than the product of *Ribeaud* for the reasons already established above with respect to at least independent claims 1, 2 and 9. Further, Applicant respectfully submits that “alkylating N- α -naphthyl-N-phenylamine (PANA)” as recited in claims 19-25 increases the solubility of the resulting product, a feature that is not realized in *Ribeaud*. For example, as described in the present specification, low kinematic viscosities are measured. See for example page 26, 29, 31, lines 14-25 of the present

specification. Accordingly, Applicant respectfully submits that new claims 19-25 are allowable for the features they recite.

In view of the foregoing, the Applicant respectfully submits that claims 1-9 and 19-25 are both novel and non-obvious over *Ribeaud*. Therefore, the Applicant submits that the claims are in condition for allowance and respectfully requests such allowance.

It is believed that no further fees are presently due. However, if necessary, the Commissioner is authorized to charge Deposit Account No. 08-2789 in the name of Howard & Howard Attorneys PLLC for any additional fees or to credit the account for any overpayment.

Respectfully submitted,

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HOWARD & HOWARD ATTORNEYS PLLC

/David M. LaPrairie/

David M. LaPrairie, Reg. No. 46,295

450 West Fourth Street

Royal Oak, MI 48067-2557

(248) 723-0442